Inside This Issue of JACC

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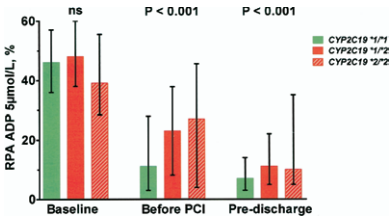

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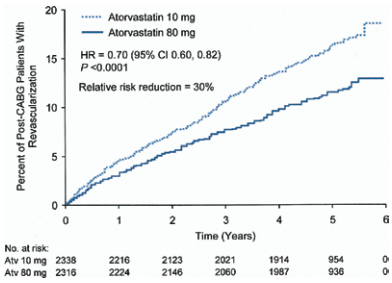
Interventional Cardiology

Blunted Response to Clopidogrel Linked to Cytochrome P450 Polymorphism

Clopidogrel is a pro-drug that must be metabolized into the active metabolite. Previous research has suggested that this conversion occurs through the cytochrome P450 (CYP) 2C19 enzyme. A loss of function mutation has been described with an allele frequency of approximately 15%. Trenk and colleagues genotyped nearly 800 patients undergoing percutaneous coronary intervention who also had their response to clopidogrel assessed with adenosine-induced residual platelet aggregation (RPA). The 30% of subjects who carried at least 1 minor allele were more likely to have an RPA >14%, and those with an RPA >14% were more likely to experience death or myocardial infarction. This study demonstrates that patients carrying at least 1 CYP2C19*2 allele are more likely to be clopidogrel resistant. **See page 1925. See figure.**



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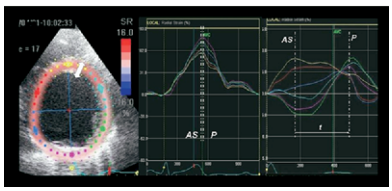
Lipids Post-Coronary Bypass

Aggressive Lipid-Lowering Improves Outcomes in Post-CABG Patients

This post-hoc analysis of the TNT (Treating to New Targets) trial examined the efficacy of aggressive lipid-lowering in patients with previous coronary artery bypass grafting (CABG). Of the over 10,000 subjects enrolled in the TNT trial, nearly one-half had undergone previous CABG. Subjects were randomized to either atorvastatin 10 or 80 mg and followed for 5 years. Those randomized to the higher dose had a hazard ratio of 0.73 for major cardiovascular events and 0.70 for revascularization. The number of post-CABG patients needed to treat with 80 mg of atorvastatin compared to 10 mg over 5 years to prevent a major cardiovascular event or coronary revascularization is 16. **See page 1938. See figure.**



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Cardiac Imaging

Radial Strain Speckle Tracking Best for Measuring Dyssynchrony

Two-dimensional echocardiographic speckle tracking can be used to measure strain along multiple axes. Delgado and colleagues measured radial strain (RS), circumferential strain, and longitudinal strain prior to and 6 months after cardiac resynchronization therapy (CRT) implantation. All subjects had left ventricular (LV) dysfunction and a QRS >120 ms. Fifty-five percent of subjects responded to CRT therapy with ≥15% decrease in LV end-systolic volume. The RS was the only measurement that reliably discriminated responders from nonresponders with a sensitivity of 83% and a specificity of 80%. Speckle tracking RS analysis appears to be a promising method for identifying potential responders to CRT. **See page 1944. See figure.**

Assessing Vascular Function

Flow-Mediated Dilation and Constriction

Two articles and an editorial assess the utility of changes in arterial diameter to study endothelial function. The traditional method to examine flow-mediated dilation places a blood pressure cuff on the upper forearm which is inflated to 300 mm Hg for 5 min and then released as either the flow in or the diameter of the brachial artery is measured. Gori and colleagues were interested in vessel constriction during cuff inflation (flow-mediated constriction), and report that this assessment appears to show complementary information. Donald and colleagues outline a protocol designed to increase reproducibility using a stereotactic clamp to hold the transducer and automated edge detection software to measure maximal dilatation. The editorial comment by Vogel laments that both methods are limited by poor signal to noise ratios. **See page 1953, 1959, and 1965.**